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10/700,772	11/03/2003	Roy S. Berns	MIPFP062	6341

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EXAMINER
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KRASNIC, BERNARD

ART UNIT	PAPER NUMBER
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2621

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/16/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/700,772	<b>Applicant(s)</b> BERNS ET AL.	
	<b>Examiner</b> Bernard Krasnic	<b>Art Unit</b> 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11-03-2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3-27-2006</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference sign "Step S64" as mentioned in page 24, line 24 of the specification. Reference sign "RMS calculator 1242" as mentioned in page 24, lines 24-25, Reference sign "Step S353" as mentioned in page 42, line 25.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities:

Page 9, line 21: "15c, and 15c" should be -- 15b, and 15c --.

Page 10, line 29: "and a index" should be -- and an index --.

Page 32, line 14: "Steps S55-S59" should be -- Steps S55-S90 --.

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Page 34, lines 20, 25, and 28, page 35, line 6, page 41, lines 9 and 29, and page 43, line 1 respectively: "15b-15d" should be -- 15b-15c --.

Page 64, line 24: "In Modified Embodiment" should be -- C8. In Modified Embodiment --.

Appropriate correction is required.

### ***Claim Objections***

3. Claims 2-4, and 7-9 are objected to because of the following informalities:

Re Claims 2-4, line 1 respectively: "An apparatus" should be -- The apparatus --.

Re Claims 7-9, line 1 respectively: "A method" should be -- The method --.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al (US 5,929,906), and further in view of Takahashi et al (US 6,987,567).

Arai, as recited in claim 1, discloses an apparatus (20, 50) for performing color conversion / color correcting with reference to a profile / parameters or connection weights (24, 55) defining correspondence between colorimetric value data and ink amount data (see Figs. 1 and 10, title, col. 6, lines 36-40, col. 5, lines 47-54, col. 13, lines 10-19), comprising a profile memory (24, 55) (see Figs. 1 and 10) for storing a plurality of profiles, a color converter / conversion portion (53, 54) for selecting one of the plurality of profiles and for converting given colorimetric data into ink amount data with reference to the selected profile (see Fig. 10, col. 11, lines 32-43, col. 13, lines 10-19).

Arai, as recited in claim 3, discloses the color converter / conversion portion (53, 54) receives selection of one of the printing conditions / usable illuminants (see Fig. 10, col. 6, lines 36-40, the profile memory gives the color converter printing conditions such as usable illuminants, col. 11, lines 44-50, the usable illuminants being the daylight illuminant and the designated illuminant).

Arai, as recited in claim 4, the plurality of profiles / usable illuminants are associated with plural types of images / daylight and designated illuminant images to be reproduced by the ink amount data, and the color converter / conversion portion (53, 54) receives selection / from profile memory (55) of one of the plural types of images, and selects the profile associated with the selected image type (see Fig. 10, col. 11, lines 44-50, col. 13, lines 32-40).

Arai, as recited in claim 5, discloses an apparatus (20, 50) for converting colorimetric value data / color correcting unit (20, 50) into ink amount data (see Figs. 1

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and 10, Abstract, col. 3, lines 9-28), comprising a first converter / converter portion (53, 54) for receiving colorimetric value data and outputting ink amount data such that two colorimetric values of a virtual sample patch to be printed with the same ink amounts represented by the ink amount data under two different viewing conditions / usable illuminants (see Fig. 10, col. 6, lines 36-40, the profile memory gives the color converter printing conditions such as usable illuminants, col. 11, lines 44-50, the usable illuminants being the daylight illuminant and the designated illuminant) are substantially equal to each other; a second converter / converter portion (53, 54) for receiving colorimetric value data and outputting ink amount data such that the ink amounts represented by the ink amount data substantially reproduces spectral reflectance associated with the received colorimetric value (see Fig. 10, Abstract, col. 3, lines 9-28 and 45-60); a selector / profile memory (24, 55) for selecting one of the first and second converters (see Figs. 1 and 10, col. 3, lines 9-28 and 45-60, col. 6, lines 36-40, the profile memory controls the weights of the neural network which essentially tell the converters what to process); and an image processor / color correcting unit (20, 50) for converting given colorimetric value data into ink amount data using the selected converter (see Figs. 1 and 10, Abstract, col. 3, lines 9-28).

Arai, as recited in claim 12, discloses an apparatus (20, 50) for producing a profile / parameters or connection weights (24, 55) defining correspondence between colorimetric value data and ink amount data representing a set of ink amounts of plural inks / CMY, CMYK, or RGB usable by a printer (see Figs. 1 and 10, title, col. 6, lines 36-40 and 45-59, col. 5, lines 47-54, col. 13, lines 10-19), comprising a spectral printing

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model converter / conversion portion (53, 54) (see Fig. 10, col. 3, lines 9-28), and a profile generator / profile memory (24, 55) producing a profile defining correspondence between colorimetric value data and ink amount data based on the selected plural sample ink amount data (see Figs. 1 and 10, title, col. 6, lines 36-40 and 45-59, col. 5, lines 47-54, col. 13, lines 10-19),.

However, Arai fails to disclose or fairly suggest, as recited in claim 1, that each profile being produced using plural sample ink amount data selected based on an evaluation index including a color difference index and an image quality index. Arai also fails to disclose or fairly suggest, as recited in claim 2, that the color difference index and the image quality index includes plural types of indices, and the color converter receives user selection of the color difference index and the image quality index. Arai also fails to disclose or fairly suggest, as recited in claim 3, that the color difference index and the image quality index are associated with plural types of printing conditions. Arai also fails to disclose or fairly suggest, as recited in claim 5, that the colorimetric value data of a virtual sample patch under two different viewing conditions are substantially equal. Arai also fails to disclose or fairly suggest, as recited in claim 12, a spectral printing model converter for a color patch, a selector for selecting one of a plurality of color difference and image quality indices, a calculator for calculating a color difference and an evaluation index, and a selector based on the evaluation index.

Takahashi, as recited in claim 1, discloses that each profile being produced using plural sample ink amount data selected based on an evaluation index / evaluation calculator (11) including a color difference index / difference calculator (8) and an image

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quality index / target color spectral data (5), the color difference index representing a color difference between a sample color / target color spectral data which is calculated from spectral reflectance of a virtual sample patch / target color to be printed with ink amounts represented by the sample ink amount data and a comparative color / compare color which is selected as a basis for comparison / color matching (6), the image quality index / target color spectral data representing image quality of the virtual sample patch / target color, the evaluation index for the plurality of profiles being defined to have different functional forms (see Fig. 1, Abstract, col. 5, lines 57-58).

Takahashi, as recited in claim 2, discloses the color difference index / difference calculator (8) includes plural types of available color difference indices (see Fig. 1, Abstract, respective frequencies in the spectrum), and the image quality index / target color spectral data includes plural types of available image quality indices (see Abstract, respective frequencies in the spectrum), and the color converter (taught by Arai in claim 1 above) receives user selection of the color difference index and the image quality index (see col. 6, lines 22-25 and 36-39, the color difference index is received through user selection because both the target and evaluation spectral data are received by the users instructions and the difference is made from these two elements making the difference index essentially user selected), and selects the profile produced using the evaluation index including the selected color difference index and the selected image quality index (the profile essentially is the evaluation index or value produced by the user selected color difference index).



Takahashi, as recited in claim 3, discloses the color difference index / difference calculator (8) and the image quality index / target color spectral data has plural available types that are associated with a plurality of printing conditions / usable illuminants (9, S501) (see Figs. 1 and 5, Abstract, col. 6, lines 22-35, the plural available printing conditions are the usable illuminants produced by the light source, col. 8, lines 1-16), and the color converter receives selection of one of the printing conditions (the converter receives the profile being the evaluation index under the usable illuminants), and selects the profile (the profile essentially is the evaluation index or value) produced using the evaluation index / evaluation calculator (11) including proper types of the color difference index / difference calculator (8) and the image quality index / target color spectral data associated with the selected printing condition / usable illuminants (see Fig. 1).

Takahashi, as recited in claim 5, discloses a virtual sample patch / target color to be printed with the same ink amounts represented by the ink amount data under two different viewing conditions / usable illuminants (9, S501) are substantially equal to each other (see Figs. 1 and 5, Abstract, col. 6, lines 22-35, the different viewing conditions are the usable illuminants produced by the light source and they could be substantially equal if the user enters appropriate light source information, col. 8, lines 1-16).

Takahashi, as recited in claim 12, discloses a spectral printing model converter / spectral error evaluation apparatus (1, 2) for converting ink amount data to spectral reflectance of a color patch / evaluation color to be printed according to the ink amount data, the spectral printing model converter converting each of a plurality of sample ink

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amount data into spectral reflectance of a virtual sample patch / target color to be printed with the ink amounts represented by the sample ink amount data; a selector / evaluation value calculator for selecting one of a plurality (see Fig. 1, Abstract, respective frequencies in the spectrum) of color difference indices / difference calculator (8) and one or more of a plurality (see Fig. 1, Abstract, respective frequencies in the spectrum) of image quality indices / target color spectral data (5), each color difference index representing a color difference between a sample color / target color which is calculated from the spectral reflectance and a comparative color / compare color which is selected as a basis for comparison / color matching (6), each image quality index / target color spectral data representing image quality of the virtual sample patch / target color to be printed according to the sample ink amount data; a calculator / difference calculator (8) for calculating values of the selected color difference index and the selected image quality index for the plurality of sample ink amount data; a calculator / evaluation value calculator (11) for calculating an evaluation index using the values of the selected color difference index and the selected image quality index for the plurality of sample ink amount data; a selector / (Arai's conversion portion selects from Arai's profile memory a profile which is essentially Takahashi's evaluation value) for selecting plural sample ink amount data based on the evaluation index (see Fig. 1, Abstract, col. 5, lines 57-58).

Therefore, in view of Takahashi, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Arai's color correcting method and apparatus by including the capabilities of having the evaluation index as

part of the profile, allowing the user selection of the color difference, having the color difference index and the image quality index to be associated with plural viewing conditions, having the colorimetric value data of a virtual sample patch under two different viewing conditions being substantially equal, having a spectral printing model converter with the two calculators in Arai's conversion portions, in order to further enhance the efficiency of the entire conversion by improving the precision and accuracy through evaluation means.

As to claim 6, it differs from claim 1 in that claim 1 is an apparatus claim whereas claim 6 is a method claim. Therefore, all the limitations in claim 6 are respectively analyzed and taught by Arai in view of Takahashi in the same manner Arai in view of Takahashi taught the limitations in claim 1 above.

As to claim 7, it differs from claim 2 in that claim 2 is an apparatus claim whereas claim 7 is a method claim. Therefore, all the limitations in claim 7 are respectively analyzed and taught by Arai in view of Takahashi in the same manner Arai in view of Takahashi taught the limitations in claim 2 above.

As to claim 8, it differs from claim 3 in that claim 3 is an apparatus claim whereas claim 8 is a method claim. Therefore, all the limitations in claim 8 are respectively analyzed and taught by Arai in view of Takahashi in the same manner Arai in view of Takahashi taught the limitations in claim 3 above.

As to claim 9, it differs from claim 4 in that claim 4 is an apparatus claim whereas claim 9 is a method claim. Therefore, all the limitations in claim 9 are respectively

analyzed and taught by Arai in view of Takahashi in the same manner Arai in view of Takahashi taught the limitations in claim 4 above.

As to claim 10, it differs from claim 5 in that claim 5 is an apparatus claim whereas claim 10 is a method claim. Therefore, all the limitations in claim 10 are respectively analyzed and taught by Arai in view of Takahashi in the same manner Arai in view of Takahashi taught the limitations in claim 5 above.

As to claim 11, it differs from claim 12 in that claim 12 is an apparatus claim whereas claim 11 is a method claim. Therefore, all the limitations in claim 11 are respectively analyzed and taught by Arai in view of Takahashi in the same manner Arai in view of Takahashi taught the limitations in claim 12 above.

### ***Provisional Obviousness-Type Double Patenting Rejection***

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 11 and 12 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/700,658. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claimed invention obviously encompasses the claimed invention of '658 Patent Application and differ only in the terminology.

For instance, in claims 11 and 12 of present claimed invention, the Applicant recites: "A method of producing a profile defining correspondence between colorimetric value data and ink amount data representing a set of ink amounts of plural inks usable by a printer comprising (a) providing a spectral printing model converter ..., (b) providing a plurality of sample in amount data ..., (c) converting each sample ink amount data ..., (d) selecting one of a plurality of color difference indices ..., (e) calculating values of the selected color difference index ..., (f) calculating an evaluation index ..., (g) selecting plural sample ink amount data based on the evaluation index, and (h) producing a profile ..." in claim 1 and "An apparatus for producing a profile defining correspondence between colorimetric value data and ink amount data representing a set of ink amounts of plural inks usable by a printer comprising a spectral printing model converter ..., a selector for selecting one of a plurality of color difference indices ..., a calculator for calculating values of the selected color difference index ..., a calculator for calculating

an evaluation index ..., a selector for selecting plural sample ink amount data ..., and a profile generator producing a profile defining correspondence ..." in claim 12.

Whereas, in claim 1 of '658 Patent Application, the Applicants claim: "A method of producing a profile defining correspondence between calorimetric value data and ink amount data representing a set of ink amounts of plural inks usable by a printer comprising (a) providing a spectral printing model converter ..., (b) providing a plurality of sample ink amount data ..., (c) converting each sample ink amount data ..., (d) calculating an evaluation index ..., (e) selecting plural sample ink amount data ..., (f) producing a profile ...".

Accordingly, in respect to above discussions, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teachings of claim 1 of '658 Patent Application as a general teaching for a method and an apparatus for producing a profile defining correspondence between colorimetric value data and ink amount data as claimed by the present application. The instant claims obviously encompass the claimed invention of '658 Patent Application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ohga et al discloses an image processing apparatus and method, and profile generating method; Newman et al discloses a reducing metamerism

in color management systems; Yamazaki et al discloses a printer, print control program, medium having print control program recorded therein, and printing method; Odagiri et al discloses method and apparatus for extracting color signal values, method and apparatus for creating, a color transformation table, method and apparatus for checking gradation maintainability, and record medium in which programs therefor are recorded; Hirokazu et al discloses method of and apparatus for correcting color of print medium, and proofer used therein; Sugiyama et al discloses image forming apparatus and masking coefficient calculation method; Nichogi et al discloses image processing apparatus and image processing method; Hagai et al discloses color converting apparatus and color converting method; Yasunobu et al discloses a facsimile apparatus; Komiya et al discloses a color reproducing device; Braun et al discloses a method for improved printer characterization; Arai et al discloses a production of color conversion profile for printing; and Stone et al discloses a system and method for managing electronic transmission of color.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Krasnic whose telephone number is (571) 270-1357. The examiner can normally be reached on Mon-Thur 8:00am-3:00pm and every other Friday 8:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bernard Krasnic  
December 20, 2006



**JONG SUK LEE**  
**SUPERVISORY PATENT EXAMINER**